TITLE 326 AIR POLLUTION CONTROL BOARD

FINAL RULE

LSA Document #99-125(F)

DIGEST

Adds 326 IAC 20-25, concerning emissions from reinforced plastics composites fabricating emission units. House Enrolled Act 1919 from the 1999 legislative session requires the air pollution control board to adopt rules to control styrene emissions from this industry. Effective thirty (30) days after filing with the secretary of state.

HISTORY

First Notice of Comment Period: July 1, 1999, Indiana Register (22 IR 3238).

Second Notice of Comment Period and Notice of First Hearing: January 1, 2000, Indiana Register (23 IR 927).

Date of First Hearing: May 3, 2000.

Third Notice of Comment Period and Notice of Second Hearing: August 1, 2000, Indiana Register (23 IR 2797)

Date of Second Hearing: October 4, 2000.

326 IAC 20-25

SECTION 1. 326 IAC 20-25 IS ADDED TO READ AS FOLLOWS:

Rule 25. Emissions from Reinforced Plastics Composites Fabricating Emission Units

326 IAC 20-25-1 Applicability

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11
Affected: IC 13-17-3

Sec. 1. (a) This rule applies to owners or operators of sources that emit or have the potential to emit ten (10) tons per year of any hazardous air pollutant (HAP) or twenty-five (25) tons per year of any combination of HAPs, and that meet all of the following criteria:

(1) Manufacture reinforced plastics composites parts, products, or watercraft.

(2) Have an emission unit where resins and gel coats that contain styrene are applied and cured using the open molding process.

(3) Have actual emissions of styrene equal to or greater than three (3) tons per year.

(b) Except as provided in section 3(e) of this rule, in the event there is a conflict

between this rule and any existing federal or state statute or federal or state rule, the more stringent requirement shall apply. *(Air Pollution Control Board; 326 IAC 20-25-1)*

326 IAC 20-25-2 Definitions

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11
Affected: IC 13-17-3

Sec. 2. The following definitions apply throughout this rule:

(1) "Air-assisted airless spray technology" means a coating application system in which:

(A) the coating fluid (including gel coat or resin) is supplied to the gun under fluid pressure; and

(B) air is combined at the spray cap of the gun.

(2) "Airless spray technology" means a coating application system in which:

(A) the coating fluid (including gel coat or resin) is supplied to the gun under fluid pressure; and

(B) air is not added to the gun.

(3) "Base coat gel coat" means an interior gel coat, used in boat building, to protect the laminate.

(4) "Class I flame and smoke products" means the following:

(A) For products meeting a building code, products that meet any one (1) of the following Flame Spread and Smoke Intensity numbers as tested by American Society for Testing and Materials (ASTM) E84-99:**

(i) Interior; flame spread less than twenty-five (25) and smoke intensity less than four hundred fifty (450).

(ii) Exterior; flame spread less than twenty-five (25).

(iii) Duct; flame spread less than twenty-five (25) and smoke intensity less than fifty (50).

(B) For products designed for mass transit application, products that meet all of the following:

(i) Flame spread measured by ASTM E162-98 less than thirty-five (35).**

(ii) Smoke intensity by ASTM E662-97 less than one and five-tenths (1.5) at one and five-tenths (1.5) minutes and less than two hundred (200) at four (4) minutes.**

(5) "Clear gel coat" means a gel coat that contains no pigments.

(6) "Compression molding" means the use of a prepared compound, such as sheet molding compound (SMC), composed of resin and fiberglass fibers and a large hydraulic press to produce fiber reinforced plastic parts.

(7) "Controlled spray" means a work practice standard that reduces emissions by increasing material transfer and reducing overspray. The following are elements of controlled spraying which work together to reduce emissions:

(A) Operation of the spray gun at the lowest fluid tip pressure, which produces

an acceptable spray pattern.

(B) Operator training that teaches proper spray gun handling techniques.

(C) The use of close containment mold flanges to minimize overspray off the mold.

(8) ACured resin or gel coat@ means resin or gel coat that has changed irreversibly from a liquid to a solid.

(9) ADelivered to the applicator@ means a resin or gel coat actually applied to an open mold, excluding any inert filler, fiberglass mat, or fiberglass roving.

(10) AExisting sources@ means sources or emission units for which the owner or operator has received all necessary construction or reconstruction permits prior to June 28, 1998, as set forth in 326 IAC 2-4.1-1.

(11) AFilament winding@ means the application of resin to strands of glass using a resin bath or other applicator and then winding the wet glass onto the mold or part.

(12) AFilled resin@ means a resin containing inert filler material equal to or greater than thirty-five percent (35%) by weight .

(13) AGel coat@ means a thermosetting resin, either pigmented or clear, that contains styrene (CAS No. 100-42-5), and provides a cosmetic enhancement or protects the underlying layers of a plastic composites material. Gel coat does not include thermoplastic material, such as polyethylene or thermosetting coatings, that do not contain styrene, such as epoxies.

(14) AHAP monomer content@ means the percent, by weight, of monomer that has been classified as a hazardous air pollutant (HAP) contained in a resin or gel coat, as delivered to the applicator, and excluding any inert filler, fiberglass mat, or fiberglass roving.

(15) AHigh-volume, low-pressure air atomized spray technology@ means a coating application system that is operated at an air pressure of less than ten (10) pounds per square inch gauge (psig) at the air cap of the spray gun.

(16) AInert filler@ means any non-HAP material, such as silica micro-spheres or micro-balloons, added to a resin or gel coat to alter density of the resin or gel coat or change other physical properties of the resin or gel coat. The term does not include pigments.

(17) AManual application@ means hand application using bucket and paint brush or paint roller, or other hand held methods of application.

(18) AMold@ means a hollow form or matrix for shaping a liquid or plastic substance.

(19) ANew sources@ means those sources or emission units that must comply with 326 IAC 2-4.1-1.

(20) ANonatomized application equipment@ means the devices where resin or gel coat material does any of the following:

(A) Flows from the applicator, in a steady state in a observable coherent flow, without droplets, for a minimum distance of three (3) inches from the applicator orifices such as flow coaters, flow choppers, and fluid impingement equipment.

(B) Is mechanically dispensed within or on to a paint roller applicator such as pressure fed rollers.

(C) Is deposited on fiber reinforcement moving through a resin or gel coat bath

such as resin impregnators.

(21) "Noncorrosion resistant resin" means a resin that does not meet the criteria of corrosion resistant resin in the specialty product resins definition.

(22) "Open molding process" means the application of resin or gel coat to an open mold by any method.

(23) "Pigmented gel coat" means a gel coat that contains a coloring substance.

(24) "Pressure fed roller" means a fabric roller that is fed a continuous supply of catalyzed resin from a mechanical fluid pump.

(25) "Production gel coat" means a gel coat that is used to manufacture parts, products, or watercraft, and does not include patch repair or touch-up activities.

(26) "Production resin" means any thermosetting resin that is used to manufacture parts, products, or watercraft, and does not include patch repair or touch-up activities.

(27) "Resin" means any thermosetting resin that contains styrene (CAS No. 100-42-5), methyl methacrylate (CAS No. 80-62-6) or both and is used to manufacture parts, products, or watercraft. Resin does not include gel coat, tooling gel coat, thermoplastic resin (for example, rotationally molded polyethylene), or thermosetting resin that does not contain styrene or methyl methacrylate (for example, epoxies).

(28) "Shrinkage controlled resin" means resin that relies on a balance of solution thermodynamics that permits three phases (thermosetting polymer, styreneated thermoplastic and styrene monomer) and produces less than or equal to one and five-tenths percent (1.5%) linear shrinkage when tested in neat (unfilled, nonreinforced) form by ASTM D2566-86.**

(29) "Specialty product resins" includes the following resins:

(A) Corrosion resistant resin is used to produce a product that meets any of the following criteria:

(i) Will be exposed to any of the following:

(AA) Materials with a pH equal to or greater than twelve (12.0) pH units or equal to or less than three (3.0) pH units.

(BB) Oxidizing agents.

(CC) Reducing agents.

(DD) Organic solvents.

(EE) Fuels or fuel additives as defined in 40 CFR 79.2*.

(ii) Complies with industry standards that require specific exposure testing for corrosive media.

(iii) Is manufactured to an accepted federal and industry standard for corrosion resistant, potable water contact or food contact applications.

(iv) Is manufactured specifically for an application that requires increased chemical inertness or resistance to chemical attack.

(B) High strength resin exhibiting a tensile strength of ten thousand (10,000) or more pounds per square inch when tested according to ASTM D638-98.**

(C) Resin used to meet military specifications.

(D) Skin Coat resin, a thin protective layer of resin, used in watercraft production or other products, applied between the gel coat and laminate that

provides corrosion resistance and prevents osmotic blistering.

(30) ATooling gel coat@ means the gel coat used in the construction of molds or prototypes (plugs).

(31) ATooling resin@ means the resin used in the construction of molds or prototypes (plugs).

(32) AVacuum bagging@ means a partially closed molding technology where, after resin has been applied, a flexible cover is placed over the wet surface, sealed, and a vacuum pump is used to draw the air out from under the cover and press the cover down onto the part.

(33) AVapor suppressed resin@ is a polyester resin material that contains additives to reduce volatile organic compound (VOC) evaporation loss to less than sixty (60) grams per square meter of surface area as determined and certified by resin manufacturers.

(34) AWatercraft@ means any motorized or nonmotorized device in which or by means of which a person may be transported upon the water, excluding seaplanes.

***Copies of the Code of Federal Regulations referenced in this article are available for copying from the Office of Air Management, Department of Environmental Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana or may be obtained from the Government Printing Office, Washington, D. C. 20204.**

**** Copies of American Society for Testing Materials methods are available for copying from the Office of Air Management, Department of Environmental Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187, or the public library.** *(Air Pollution Control Board; 326 IAC 20-25-2)*

326 IAC 20-25-3 Emission standards

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11
Affected: IC 13-17-3

Sec. 3. (a) Except as provided in subsections (e), (f), and (h), owners and operators of sources subject to this rule shall comply with the provisions of this section on or before January 1, 2002. The total HAP monomer content of the following materials shall be limited depending on the application method and products produced as specified in the following tables:

TABLE I Fiber Reinforced Plastics Composites Products Except Watercraft	HAP Monomer Content, Weight Percent
Resin, Manual or Mechanical Application	
Production-Specialty Products	**48***
Production-Noncorrosion Resistant Unfilled	**35***
Production-Noncorrosion Resistant Filled ($35% by weight)	**38**

TABLE I Fiber Reinforced Plastics Composites Products Except Watercraft	HAP Monomer Content, Weight Percent
Production, Noncorrosion Resistant, Applied to Thermoformed Thermoplastic Sheet	42
Production, Class I, Flame and Smoke	60*
Shrinkage Controlled	52
Tooling	43
Gel Coat Application	
Production-Pigmented	37
Clear Production	44
Tooling	45
Production-Pigmented, subject to ANSI[a] standards	45
Production-Clear, subject to ANSI[a] standards	50

[a] American National Standards Institute.

TABLE II Watercraft Products	HAP Monomer Content, Weight Percent
Resin, Manual or Mechanical Application	
Production-Specialty Products	48*
Production-Noncorrosion Resistant unfilled	35*
Production-Noncorrosion Resistant Filled ($35% by weight)	38
Shrinkage Controlled	52
Tooling	43*
Gel Coat Application	
Production-Pigmented and Base Coat Gel Coat	34
Clear Production and Tooling	48

* Categories that must use mechanical nonatomized application technology or manual application as stated in subsection (b).

(b) Except as provided in subsection (f), the following categories of materials in subsection (a) shall be applied using mechanical nonatomized application technology or manual application:

(1) Production noncorrosion resistant, unfilled resins from all sources.

(2) Production, specialty product resins from all sources.

(3) Tooling resins used in the manufacture of watercraft.

(4) Production resin used for Class I flame and smoke products.

(c) Unless specified in subsection (b), gel coat application and mechanical application of resins shall be by any of the following spray technologies:

(1) Nonatomized application technology.

(2) Air-assisted airless.

(3) Airless.

(4) High volume, low pressure.

(5) Equivalent emission reduction technologies to subdivisions (2) through (4).

(d) Cleaning operations for resin and gel coat application equipment are as follows:

(1) For routine flushing of resin and gel coat application equipment such as spray guns, flowcoaters, brushes, rollers, and squeegees, a cleaning solvent shall contain no HAPs. This emission standard does not apply to solvents used for removing cured resin or gel coat from application equipment.

(2) A source must store HAP containing solvents used for removing cured resin or gel coat in containers with covers. The covers must have no visible gaps and must be in place at all times, except when equipment is placed in or removed from the container.

(3) Recycled cleaning solvents that contain less than or equal to five percent (5%) HAP by weight are considered to contain no HAP for the purposes of this subsection.

(e) A source that was issued a permit pursuant to 326 IAC 2 on or after June 28, 1998, but prior to the effective date of this rule, and that obtained a revised best available control technology (BACT) determination in the permit for emission units, is not subject to this section until the permit is renewed, or the emission unit undergoes a modification that increases the potential to emit styrene.

(f) A new or reconstructed emission unit subject to 326 IAC 2-4.1-1 is not subject to the requirements of this section.

(g) The owner or operator of a source subject to this rule may comply with this section using monthly emission averaging within each resin or gel coat application category listed in subsection (a) without prior approval by the commissioner.

(h) Upon written application by the source, the commissioner may approve the following:

(1) Enforceable alternative emission reduction techniques that are at least equally protective of the environment as the emission standards in subsections (a) through (d).

(2) Use of monthly emissions averaging for any or all material or application categories listed in subsection (a) if the following conditions are met:

(A) The source shows that emissions did not exceed the emissions that would have occurred if each emission unit had met the requirements of subsections (a) through (c).

(B) The source uses any one (1) or a combination of the following emission reduction techniques:

(i) Resins or gel coats with HAP monomer contents lower than specified in

subsection (a).

(ii) Vapor suppressed resins.

(iii) Vacuum bagging or other similar technique. This item does not include resin transfer molding or compression molding.

(iv) Air pollution control equipment where the emissions are estimated based on parametric measurements or stack monitoring.

(v) Controlled spray used in combination with automated actuators or robots.

(vi) Controlled spray that includes the following:

(AA) Mold flanges.

(BB) Spray technique.

(CC) Spray gun pressure.

(DD) Means of verifying continuous use of the controlled spray technique, such as mass balance of materials and products (surface area and thickness of product), as approved by the commissioner prior to implementation.

(vii) Emission reduction techniques approved under subdivision (1). Sources using averaging shall not use spray equipment that produces higher emissions than the equipment specified in subsections (c)(2) through (c)(5).

(i) To determine emission estimates, the following references or methods shall be used:

(1) "Unified Emission Factors for Open Molding of Composites", April 1999*, except use of controlled spray emission factors must be approved by the commissioner.

(2) "Compilation of Emission Factors", Volume 1, Fifth Edition, and supplements, January 1995*, except for hand layup and spray layup operations emission factors.

(3) Site-specific values or other means of quantification provided the site-specific values and the emission factors are acceptable to the commissioner and the U. S. EPA.

***Copies of the "Compilation of Emission Factors" and "Unified Emission Factors for Open Molding of Composites" referenced in this article are available for copying from the Office of Air Management, Department of Environmental Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana** *(Air Pollution Control Board; 326 IAC 20-25-3)*

326 IAC 20-25-4 Work practice standards

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11

Affected: IC 13-17-3

Sec. 4. On or before March 1, 2001, each owner or operator of a source or emission unit subject to this rule shall operate in accordance with the following work practice standards:

(1) Nonatomizing spray equipment shall not be operated at pressures that atomize the material during the application process.

(2) Except for mixing containers as described in subsection (7), HAP containing

materials shall be kept in a closed container when not in use.

(3) Solvents sprayed during cleanup and resin changes shall be directed into solvent collection containers.

(4) Solvent collection containers shall be kept closed when not in use.

(5) Clean-up rags with solvent shall be stored in closed containers.

(6) Closed containers shall be used for the storage of the following:

(A) All production and tooling resins that contain HAPs.

(B) All production and tooling gel coats that contain HAPs.

(C) Waste resins and gel coats that contain HAPs.

(D) Cleaning materials, including waste cleaning materials.

(E) Other materials that contain HAPs.

(7) All resin and gel coat mixing containers with a capacity equal to or greater than fifty-five (55) gallons must have a cover with no visible gaps in place at all times except when material is being added to or removed from a container, or when mixing or pumping equipment is being placed in or removed from a container. *(Air Pollution Control Board; 326 IAC 20-25-4)*

326 IAC 20-25-5 Testing requirements

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11

Affected: IC 13-17-3

Sec. 5. (a) An initial performance test is required when using air pollution control equipment to demonstrate compliance with the standards in section 3 of this rule. Testing shall be performed in accordance with 326 IAC 3-6, concerning source sampling procedures, and 40 CFR 63.7 (July 1, 1998)*, performance testing requirements.

(b) When using air pollution control equipment to demonstrate compliance with the standards in section 3 of this rule, the following test methods shall be used:

(1) 40 CFR 60, Method 25/25A, Appendix A (July 1, 1998)*, shall be used to measure total hydrocarbon emissions.

(2) 40 CFR 60, Method 18, Appendix A (July 1, 1998)*, shall be used to measure styrene and methyl methacrylate emissions.

(3) 40 CFR 51, Method 204, Appendix M (July 1, 1998)*, shall be used to determine capture efficiency. As an alternative to the procedures specified in 40 CFR 51, Method 204, Appendix M (July 1, 1998)*, an owner or operator required to conduct a capture efficiency test may use any capture efficiency protocol and test methods that satisfy the criteria of either the data quality objective or the lower confidence limit approach as described in the EPA Guidelines for Determining Capture Efficiency, which is included in Appendix A to Subpart KK to 40 CFR Part 63 (July 1, 1998)*. The owner or operator may exclude work stations that have never been subject to such capture efficiency determinations.

(c) Compliance with the HAP monomer content and usage limitations shall be determined

using one (1) of the following:

(1) The manufacturer=s certified product data sheet.

(2) The manufacturer=s material safety data sheet.

(3) Sampling and analysis, using any of the following test methods, as applicable:

(A) 40 CFR 60, Method 24, Appendix A (July 1, 1998)*, shall be used to measure the total volatile HAP content of resins and gel coats. Method 24 may be modified for measuring the volatile HAP content of resins or gel coats to require that the procedure be performed on uncatalyzed resin or gel coat samples.

(B) 40 CFR 63, Method 311, Appendix A (July 1, 1998)*, shall be used to measure HAP content in resins and gel coats by direct injection into a gas chromatograph.

(C) Upon written application by the source, the commissioner may approve an alternative test method.

When a MSDS, a certified product data sheet, or other document specifies a range of values, the values resulting in the greatest calculated emissions shall be used for determining compliance with this rule.

***Copies of the Code of Federal Regulation (CFR) referenced in this section may be obtained from the Government Printing Office, Washington, D. C. 20204 or are available for copying from the Office of Air Management, Department of Environmental Management, Indiana Government Center-North, 100 North Senate Avenue, Indianapolis, Indiana 46204.** *(Air Pollution Control Board; 326 IAC 20-25-5)*

326 IAC 20-25-6 Record keeping requirements

Authority: IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11

Affected: IC 13-17-3

Sec. 6. (a) On and after January 1, 2002, each owner or operator of a source or emission unit subject to this rule shall maintain records that are complete and sufficient to establish compliance with the requirements of this rule. Examples of such records are as follows:

(1) Purchase orders.

(2) Invoices.

(3) Material safety data sheets (MSDS).

(4) Manufacturer=s certified product data sheets.

(5) Calculations.

(6) Other records to confirm compliance.

(b) The owner or operator shall maintain records of all information, including all reports and notifications required by this rule. Such records shall be recorded in a form suitable and readily available for inspection and review. Except as provided in section 8(d), the records shall be retained for at least five (5) years following the date of each occurrence, measurement, or record. At a minimum, the most recent two (2) years of data shall be retained on site. The remaining three (3) years of data may be retained off site. *(Air Pollution*

Control Board; 326 IAC 20-25-6)

326 IAC 20-25-7 Reporting requirements

Authority: **IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11**

Affected: **IC 13-17-3**

Sec. 7. (a) On or before June 1, 2001, the owner or operator of a source subject to this rule shall submit an initial notification report to the commissioner. The notification report shall include all of the following:

(1) Name and address of the owner or operator.

(2) Address of the physical location of the source.

(3) Statement verifying that the source is subject to the rule signed by a responsible official as set forth in 326 IAC 2-7-1(34).

(b) On or before March 1, 2002, the owner or operator of a source subject to this rule shall submit an initial statement of compliance to the commissioner. The initial statement of compliance shall include all of the following:

(1) Name and address of the owner or operator.

(2) Address of the physical location.

(3) Statement signed by a responsible official, as set forth in 326 IAC 2-7-1(34), certifying that the source achieved compliance on or before January 1, 2002, the method used to achieve compliance, and that the source is in compliance with all the requirements of this rule.

(c) Sources using monthly emissions averaging pursuant to section 3(h)(2) of this rule, shall submit a quarterly summary report and supporting calculations. *(Air Pollution Control Board; 326 IAC 20-25-7)*

326 IAC 20-25-8 Operator training

Authority: **IC 13-14-8; IC 13-15-2-1; IC 13-17-3-4; IC 13-17-3-11**

Affected: **IC 13-17-3**

Sec. 8. (a) Each owner or operator shall train all new and existing personnel, including contract personnel, who are involved in resin and gel coat spraying and spray-like applications (for example, those applications that could result in excess emissions if performed improperly) according to the following schedule:

(1) All personnel hired after the effective date of this rule shall be trained within fifteen (15) days of hiring.

(2) All personnel hired before the effective date of this rule shall be trained or evaluated by a supervisor within thirty (30) days of the effective date of this rule.

(3) To ensure training goals listed in subsection (b) are maintained, all personnel shall be given refresher training annually.

(4) Personnel who have been trained by another owner or operator subject to this rule

are exempt from subdivision (2) if written documentation that the employee=s training is current is provided to the new employer.

(5) If the result of an evaluation shows that training is needed, such training shall occur within fifteen (15) days of the evaluation.

(b) The lesson plans shall cover, for the initial and refresher training, at a minimum, all of the following topics:

(1) Appropriate application techniques.

(2) Appropriate equipment cleaning procedures.

(3) Appropriate equipment setup and adjustment to minimize material usage and overspray.

(c) The owner or operator shall maintain the following training records on site and available for inspection and review:

(1) A copy of the current training program.

(2) A list of all current personnel, by name, that are required to be trained and the dates they were trained and the date of the most recent refresher training.

(d) Records of prior training programs and former personnel are not required to be maintained. *(Air Pollution Control Board; 326 IAC 20-25-8)*